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## Best Practices of Mail and Phone Surveys

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Some successful business decisions are brilliant improvisations based on instinct and a big boost from luck. Most of them, though, are rational choices, arrived at by a confident decision-maker in possession of all the facts. When the necessary information is not readily available, well-designed, methodologically sound surveys are often the best way to get the necessary data. An effective survey begins by setting workable objectives.

In the business press, mail surveys are the most common survey technique, although telephone surveys and personal interviews are also common, and the Internet is gaining ground. An important part of pre-planning a survey is to select the least labor-intensive, most cost-effective method for obtaining the statistically sound result that will be useful for business planning. Most surveys are conducted to answer specific business questions, such as setting the right product mix or understanding reader demographics.

### Research Objectives

If a survey is conducted carefully and truthfully, it will provide answers to various questions. If survey users are disappointed by survey results, it is often because the wrong questions were asked, or the survey doesn't penetrate far enough.

A good survey is precisely targeted. It doesn't require respondents to take a lot of time to answer irrelevant questions. Most surveys have either two or three overarching objectives. If your survey has more than that, consider dividing it.

The research objectives of a survey answer the question, "What will we be able to decide, and what action will we be able to take once the survey is completed?"

Let's say that a publication has never surveyed its readers about their reactions to the current editorial product. The editors also want the survey to provide information as to whether any changes are needed. A successful survey will assist the editors in making decisions and taking action:

Objective #1: Accurate assessment of reader reaction to the publication's editorial content

Objective #2: Determination of their satisfaction with current content

Objective #3: Selection of new material if replacements for current material are needed

Most surveys are done by a team. Focusing on objectives allows all team members to contribute questions that satisfy the entire organization's objectives, not just the narrower objectives of their own work unit. Although everyone's draft should be given respectful attention, questions should only make it to the final survey if they further the objectives of the survey.

### **When Mail Works Best**

There are good reasons for the popularity of mail surveys. Doing a survey by mail works best when:

- Sample size is large enough
- Respondents are geographically dispersed, especially if some are outside the U.S.
- Time is not an issue (phone surveys generally work best when a quick turn-around is required)
- The survey solicits sensitive information; respondents are often reluctant to tell a live interviewer how much they earn, or their opinion on a controversial issue such as abortion.
- You are seeking thoughtful, considered opinions. The mail survey gives respondents time to think through their answers
- Survey respondents are busy people who resent interruptions; they can answer a mail survey when it's convenient for them

### **Indications for Phone/Personal Surveys**

Phone surveys are very useful when a fast turnaround is imperative. The field work can be completed in just a few days (versus weeks for a mail survey). Sometimes, however, extra speed is more expensive, so you'll have to decide if the accelerated results are worth the cost premium.

For a telephone survey to work, it must target individuals who can be reached by telephone. There must be many potential survey respondents; probably at least one in three of the relevant population. Otherwise, it will be necessary to do too many screening interviews, raising the cost and reducing the advantage of speed.

The subject of the survey must be non-sensitive enough that respondents are willing to discuss it in an environment (e.g., an office cubicle) where others might overhear. A survey that requires extensive explanations or follow-up questions ("probing") works better by phone or personal interview than by mail, although success depends on well-trained interviewers who do not bias the results.

The phone technique has the advantage of facilitating screening for appropriate participants: for instance, finding the organization's buyer for specific types of products or services. Job titles are not always consistent within your survey sample. Maybe a mail survey questionnaire would be routed to the appropriate person. A phone survey almost guarantees that the appropriate person will be interviewed.

Although personal interviews tend to be more expensive than mail or phone surveys, they work well when the survey requires exhibits or props. This method is also helpful when very complex questions have to be clarified.

### **Checklist for Choice**

Bearing all that in mind, these are some factors in choosing the method for conducting your survey:

- Do you have time for a mail survey?
- Is your sample large or small?
- How long is the survey?
- Does it involve complex or sensitive questions?
- Do respondents have to refer to outside materials, such as payroll data, costs, or customer information to answer the questions?

### **In-House or Outsource?**

A survey should be done in-house if you have the necessary resources, and want to be closely identified with the project. It should be outsourced if you lack the capacity and experience to select and qualify the appropriate sample and design an effective survey. Remember, surveys require not just field work (data collection), but data entry and tabulation. If your company is very influential, respondents might say what they think you want to hear. In that situation, outsourcing might yield more objective and useful results.

To learn the range of prices for outsourcing the survey, get at least three bids from outside firms. Comparing this price to the cost of doing the survey in-house can be difficult. The cost of doing the same study in-house is not just the direct cost, but the opportunity cost of diverting personnel and resources from other projects to work on the survey.

### **Sample Design for Mail Surveys**

Most mail surveys go to a sample, rather than an entire audience or market. Sample surveys tend to be more timely and less costly than census surveys, and you can be reassured that the scientific validity of sampling is well-established. A sample that randomly selects members from a population with known probability will represent the entire population with known accuracy.

#### *Defining the Population of Interest*

Who should the research represent? Perhaps the appropriate population of interest could be individuals (such as magazine readers); establishments (the offices where they work); or firms (the entire company they work for). Consumers and consumer households are other common survey populations.

The pool of interest can be bounded by space (households; rural areas) or time (for instance, subscribers for over one year). The survey objectives might require selection by job function, recent purchasing behavior, age, or gender.

Defining the population of interest leads to creation of the sampling frame. For mail surveys, the usual sampling frame is one or more mailing lists. If the frame does not provide an accurate reflection of the population of interest, the survey will be marred by frame bias. A classic example of frame bias is the use of youthful undergraduate students for general-purpose psychology experiments. Eighteen-year-olds just aren't representative of humanity in general. In the magazine world, frame bias is present in studies that survey magazine recipients (including pass-along readers, and even some non-readers) to learn about the population of magazine readers.

### *Selecting Sample Members*

Sample members must be selected with known probability using a random selection procedure. It's not necessary that each subgroup of a sample have the same probability of selection, only that the researcher knows the probability.

This principle rules out many possible sampling approaches:

- Samples of "experts" or "industry leaders" (unless the results purport to represent only those sampled, not a larger group)
- Quota samples, where new names are continually contacted until there are enough responses in categories such as age, sex, or location
- Convenience samples such as surveys taken at a local mall. Convenience samples fail to represent larger populations of shoppers because they are influenced by location, time of day, and the state of the economy.

Bias can enter the sample in other ways. If you choose from a transaction list of purchasers when you want to survey the purchaser population, the probability of selection will be higher (to an unknown extent) for frequent purchasers than for infrequent purchasers. If you want to model firm purchasing intentions but your sample comes from a list of magazine recipients, the largest firms will be over-represented to an unknown degree because, on average, they employ more magazine recipients than smaller firms do.

The laws of statistics require a random selection procedure, or a near equivalent such as "systematic" or "nth-name" process, to select the sample from the frame. People are demonstrably poor at "random" selection, so hand-picking a survey sample is likely to introduce some form of bias. Don't forget the extent to which sample members themselves choose whether or not to participate. Self-selection means that the sample is no longer random. The research probably represents only three minority segments of the population:

- Those who are unusually upbeat about the survey subject or the survey sponsor
- Those with an axe to grind
- People with a lot of time on their hands, or a taste for completing surveys

These factors came together in Madison, Wisconsin, in a local TV station's phone-in poll on lowering the drinking age. More than five times the usual number of calls was received. The results were 78% pro, 22% con-of course, this was the home of the University of Wisconsin.

### **Best Sample Size**

The results of a methodologically sound survey will represent the population of interest with known accuracy. If you want to understand the theoretical foundations, keep reading; otherwise, skip to the next section for less technical matters.

A mathematical law called the Central Limit Theorem allows the calculation of the extent to which the real value of a variable in the population will differ from the estimated value developed from the sample.

This is most often expressed as the famous "margin of error"—for instance, "survey results are subject to a margin of error of  $\pm 4\%$  at the 95% confidence level." This statement says that we expect the true population value to be within 4 percentage points either way 95 times out of 100. It's also true that the laws of probability tell us that, five times in a hundred, the population value will be outside that range.

Both parts of the statement are important. The higher the confidence level, the higher the plus-or-minus factor (and vice versa). The "margin of error" is a simplification. It is usually understood to mean "this is the maximum sampling error to which percentages will be subjected." Values closest to 50% have the highest level of error. Those closer to 1% or 99% have much less imprecision associated with them.

Except for the very smallest groups (populations under about 5,000), the primary determinant of the margin of error for percentages is the tabulated sample size. This principle is somewhat surprising, but it is the rule that allows Gallup and other polling firms to use about 1,200 interviews to represent the views of 260 million Americans.

Sampling error decreases with the square of the tabulated sample size. For a survey returning 150 responses, the margin of error will be  $\pm 8\%$  at the 95% confidence level. Four times as many responses (600) would be needed to cut the error level in half  $\pm 4\%$ .

So the answer to the question "how large should the sample be?" is another question: "How precise do you want the results to be?" If you know that you can accept  $\pm 4\%$  at the 95% confidence level, you also know that a tabulated sample of 600 is needed. You can work backward from that figure, and your expected response rate, to determine how many survey instruments will have to be mailed.

There are four more factors in the sample size decision. The first is the nature of the variables you are measuring. The margin of error applies to percentages or proportions. However, the error associated with statistics such as means or standard deviations depends on the variability of those qualities within the population, not just the sample size. If you need to measure values like total sales volume, average expenditures by category, or current salary, your sample size will probably have to increase.

The second consideration is whether crosstabs or other segment-level analyses will be required. Sampling error considerations also apply to subgroups from a sample. A survey whose overall results are statistically valid (e.g., 600 responses for a  $\pm 4\%$  margin of error) may be invalid when a segment of the population is broken out for closer examination. For instance, 37 responses from recent buyers might be subject to a  $\pm 16\%$  margin of error). One way to avoid this is to choose a stratified sample, with a higher probability of selection for the group(s) of interest. This kind of oversampling provides more tabulated responses for those key segments. The margin of error is reduced, but it must be balanced by statistical weighting of the results (discussed below).

The third question is whether these results will be trended against prior data. If so, a larger sample size will probably be required. If the first survey recorded a 50% value ( $\pm 5\%$ ) and the second survey recorded a 57% value on the same measure (again  $\pm 5\%$  margin of error), the difference between the two quantities is not statistically significant at the specified confident level. For instance, the true value could have been constant at 55%, and fallen with the margin of error both times.

Finally, the "face validity" factor sometimes influences sample sizes. This is a technical concept;

for this White Paper, it's enough to say that having a sample that's large enough for non-experts to trust it can be more important than the quantifiable characteristics of the statistics themselves.

### **Minimizing Bias**

Remember, you need a random selection procedure to make a smaller sample an accurate representation of a larger population. The Madison example (lowering the drinking age) shows how self-selection can create nonrandom conditions that undermine the usefulness of the sample. This is just one instance of a more general phenomenon. A nonresponse bias can be introduced when part of the original random sample fails to respond.

If only 25% of sample members respond, then 75% of the population is not represented in the results. If the individuals in the sample are identical, this isn't a problem. But if they have any salient characteristics that cause or even correlate with nonresponse, the survey results can become inaccurate to a significant degree.

Unfortunately, research shows that nonrespondents often differ from respondents in significant ways, although the extent varies with the population of interest and the topic being surveyed. Some of the problems can be solved by adjusting the survey results, but it's much better to minimize bias by getting a highly representative rate of response from a properly selected sample.

How high a response rate do you need? Unfortunately, that's hard to tell, because nonresponse bias is not as quantifiable as the margin of error. Certainly, the researcher must receive a high enough response to lower the error rate attributable to nonresponse bias to levels comparable with sampling error and other sources of error.

Sometimes, statistical weighting can mitigate biases somewhat. Say that the sample results differ from reliable data (e.g., circulation distribution by state) already known about the population as a whole. The results can be weighted in tabulation to enhance representation of the lower-responding segments and reduce representation from the higher-responding segments, so that the overall totals are in proportion. This technique must be used if a stratified sampling plan is used, so oversampled groups are restored to proportionality in the final dataset. However, this approach doesn't solve all problems of fair representation. We can't conclude in advance that nonrespondents from New York City are identical to nonrespondents from Nome, Alaska with regard to the variables of interest to the survey.

### **Scientific Sampling Summary**

This material introduces you to the paradigm of scientific sampling. These techniques are best suited for quantitative mail surveys that use known and well-enumerated populations. Magazine circulation lists are a prime example.

If you have other objectives or must operate subject to constraints on time, money, and prior information, you may need to use other approaches. Other forms of probability samples, or some nonprobability forms, may work better for you. But the best way to get bias-free, statistically precise survey results is to get a high response rate from a randomly selected probability sample of sufficient size.

### **Designing the Questionnaire**

It's bad enough that a poorly-designed questionnaire often lowers the response rate: but whatever results are received are often unusable. A successful survey starts with a well-designed questionnaire that asks the right questions, in the right way.

Your survey should probably answer at least one of these questions:

- What do we know/want to know about our customers?
- How do our customers feel about our company or our product and its future?
- How effective has our performance been in the marketplace?
- What needs are not being met? What can be done to satisfy them?

### *Types of Questions*

Closed-ended ("aided") questions ask the respondent to choose among answers provided in the survey. Mail surveys with closed questions get a higher response rate, because they are less demanding of respondents. Closed-ended questions simplify the data handling stage because tabulation and coding are easier. The end result is quantitative information that is more easily translated into statistical market research data.

An effective closed-end-question survey depends on intelligent questions and the best possible set of answers, so the design stage can be complex. Industry experts can provide input as to the best answers for the questions.

Multiple-choice questions (yes/no/maybe; strongly agree/agree/disagree/strongly disagree; choosing answer(s) from a list) are the most common.

Rating questions ask the respondent to assign an individual rank (e.g., on a scale of 1 to 5) to each item in a series. Respondents often give the same rating to each item, especially when they note their satisfaction or review the performance of the product. Their satisfaction with one performance area may be reflected overall.

Ranking asks for comparisons among items in a series; each item must be assigned a different ranking (for instance, best product to worst product). To avoid prejudgments, ask ranking questions early in a survey, and limit the number of ranking questions and the number of items in each series.

Open-ended ("unaided") questions ask respondents to express their own answers through word association or sentence completion. This format lets the respondent volunteer unexpected or in-depth answers. Open-ended questions yield qualitative data about attitudes and behaviors, and can help target specific concerns. Unfortunately, they don't work well in mail surveys, where the researcher has no opportunity to expand on a respondent's answer. Mail surveys that ask open-ended questions often suffer from low return rates, inconsistent results, and statistically invalid market information. However, open-ended questions can be useful when you interview an expert about what information your survey should provide, or when you're pre-testing a questionnaire and want feedback.

Questions can also be described as direct or indirect. (The same survey can include both types of questions.) Direct questions ask about the individual's own behavior. EXAMPLE: "What is your favorite television program?"

Indirect questions ask about other people's behaviors or tendencies—but the respondent's attitudes are manifested by his or her response. EXAMPLE: "How do you think most people feel about

assisted suicide?" If you sense a built-in bias or prejudice, indirect questions can draw out feelings that respondents would hesitate to express directly. EXAMPLE: Direct question: "Do you trust your physician?"; Indirect question "Do you think most people trust the medical profession?"

### *Guidelines for Effective Survey Design*

- Stand out from the competition. Be personal and salient
- Anticipate issues
- Organize your ideas to ask the most revealing questions
- Make the survey flow naturally: ask questions in a logical progression
- Number all the sections of the survey; it's easier to follow that way
- Don't ask more questions than you need to get the crucial information
- Don't ask for two pieces of information in a single question EXAMPLE: "Are you satisfied with the vehicle's safety record and level of performance?"
- Avoid leading questions, or questions that are biased in any way EXAMPLE: "Is the government effectively controlling violence in the country's school system?" is a better question than "Do you feel the government should take further steps to control the ever-growing problem of violence in the country's school system?"
- Start with easy questions, move on to harder ones, to attract the respondent's interest and keep him or her interested
- To promote interest, mix response formats (e.g., scales, rankings, multiple choice)
- Start with general questions, move on to more specific questions. EXAMPLE: Question 1: Have you eaten lunch at a fast food restaurant during the week?  
Question 2: If yes, what did you order?
- Explain how to answer the questions (for instance, "Circle only one response"; "Check all that apply"; "Rate these factors on a scale of 1-5, where 1 is Most Important and 5 is Least Important")
- If you use skip patterns (EXAMPLE: ask for a "yes" or "no" answer, followed by "If yes, please continue, but if no, skip to question #7"), use shading, spacing, or color schemes to direct the respondent. Landing points after a skip should be clearly marked and prominent on the page. Don't frustrate respondents by making them search for the skip point.
- Avoid professional jargon, slang, and abbreviations when drafting questions
- Define terms the respondent may not understand, keeping cultural, regional, and technical factors in mind
- Use visual aids (charts, diagrams, etc.) or explanations to clarify difficult questions
- Choose type, paper, color, and other design elements to make the survey instrument look professional and attractive
- Use 8.5" x 11" paper or smaller; larger sizes look too cumbersome and will cut response
- Reassure respondents by using familiar color product or company logos
- Ask questions that respondents can answer without consulting other sources or solving complex equations
- Consider rewording questions that ask about age, income, or other sensitive subject

EXAMPLE: Can your family afford to take a vacation within the next 12 months? versus "Is a family vacation planned within the next 12 months?" If you need the information from the sensitive questions, defuse the impact by asking them toward the middle or end of the questionnaire

- Review the questions against your research objectives.

### **Pretesting the Survey**

After the survey is designed, and before it is sent out, pretesting is vital. Pretesting administers the survey to a small sample group: perhaps customers, colleagues, friends, or your co-workers. At this stage, your objective is to make sure that the survey questions are clearly worded and provoke the appropriate responses. If your pretest respondents ask "What does this mean?" then you know you need to rewrite.

The pretest results are used to edit, strengthen, and clarify the survey. You may need four, five, even six cycles of revision before the final product is ready, but it's worth it to design the best possible questionnaire.

### **Managing the Mail Survey**

Many people believe that all mail surveys automatically show a low response rate. That's not true—if the survey is well planned and every factor in the process is controlled.

#### *Planning the Cover Letter*

The respondent's first impression of the survey comes from the appearance of the envelope. The choice of a label versus a typed address, meter postage versus a stamp, help indicate the surveyor's impression of the importance of the survey and the prestige of its recipients.

The cover letter included in the survey kit package also makes a tremendous impression. The cover letter conveys the purpose and goal of the study; this is where you "sell" the respondent the idea of filling out the survey. But respondents may already have made up their minds as soon as they opened the envelope. Factors behind a successful and attractive cover letter:

#### *Guidelines for Effective Survey Design*

- Use a large, dark typeface and dynamic language—design/content features that grab the respondent's attention immediately
- Be direct and concise. Hardly anybody will respond to a wordy letter
- Make the survey exciting and exceptional
- Make respondents feel that their contribution is important
- Explain why the research is being conducted and how its results will help not only the individual respondent but an entire community
- Playing on fears—such as the Y2K countdown or the ever-increasing cost of medical benefits—can enhance the response rate
- Make the style for both letter and survey consistent and professional
- If you have sponsorship (from churches, schools, or public figures), use it to enhance your credibility
- Assure anonymity, especially if the survey topic is embarrassing or sensitive. People will say more to a stranger

- Be honest. Don't promise anonymity when identities will be revealed. Don't tell respondents that completing the questionnaire will take only five minutes when the real time commitment is much greater.

### *Increasing Response with Incentives*

Response rates for your mail survey will probably be disappointing unless you provide incentives for response. The scale of incentives you can offer depends on your budget; your need for each individual response; and the audience's motivation to respond. Some options to consider:

- Monetary gifts. These are very effective. The industry standard is a one-dollar bill for a four-page survey. Fifty cents is the cut-off for changing response: anything less has no effect. Another method is to put a \$3-\$5 check in the envelope. This usually limits incentive costs, because most people will only cash the check if they complete the survey. A small percentage will simply cash the check notwithstanding failure to respond.
- Other gifts. Everyone enjoys receiving gifts in the mail, but the gift has to have some value. If it looks cheap, so does the survey.
- Prize drawings for a cash voucher. This can be effective, but methods with an immediate "payoff" probably will be more effective. Anonymity also becomes an issue with a prize drawing. Of course, FTC and state requirements for sweepstakes must be satisfied, and some jurisdictions ban sweepstakes.
- Data request cards: as long as the survey is not proprietary, respondents who fill out the card eventually get some study results. Everyone wants to feel that they are contributing to "the cause"; this lets them see the fruits of their efforts
- Tailored incentives, such as free software for programmers. The effect of an incentive often depends more on diligence and creativity than cost.